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EXAMINER	
CLEARY, THOMAS J	

ART UNIT	PAPER NUMBER
2111	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/994,516	DOAN ET AL.	
	Examiner	Art Unit	
	Thomas J. Cleary	2111	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 April 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-9,11-16,18-22,25-27,33,34,36-42,44-48 and 50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-9,11-16,18-22,25-27,33,34,36-42,44-48 and 50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 19, 20, 21, 22, 25, 26, 27, 33, 34, 36, 37, 38, 39, 40, 41, 42, 44, 45, 46, 47, 48, and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Number 6,256,692 Yoda et al. ("Yoda"), US Patent Number 6,098,158 to Lay et al. ("Lay"), and US Patent Number 5,818,182 to Viswanadham et al. ("Viswanadham").

3. In reference to Claim 1, Yoda teaches a central processing unit (CPU) (See Figure 1 Number 10); a local CPU bus coupled to the CPU (See Figure 1 Number 14); a memory coupled to the local CPU bus to store data accessible by the CPU via the local CPU bus (See Figure 1 Number 12); a PCI bus coupled to the local CPU bus to provide communication with the CPU and the memory via the local CPU bus (See Figure 1 Number 18); and a PC card (See Figure 1 Number 26), the PC card further having a controller coupled to the PC card device for coordinating with the CPU access to the

device (See Figure 1 Number 28); and a PCI-CardBus bridge coupled to the PC card and the PCI bus to provide communication between the PCI bus and the PC Card coupled to the PCI-CardBus bridge (See Figure 1 Number 24). Yoda does not teach the PC card having a non-volatile memory for storing machine state information and further having a controller coupled to the non-volatile memory for coordinating with the CPU access to the non-volatile memory and the memory to store and download the machine state information for capturing and restoring, respectively, a corresponding machine state of a computer system. Lay teaches storing machine state information in a non-volatile memory (See Figure 4 and Column 2 Line 23 – Column 3 Line 5) and a controller coupled to the non-volatile memory for coordinating with the CPU access to the non-volatile memory and the memory to store and download the machine state information for capturing and restoring, respectively, a corresponding machine state of a computer system (See Column 2 Lines 26-31, Column 2 Lines 45-54, Column 3 Lines 2-5, and Column 6 Lines 36-43). Viswanadham teaches PCMCIA card, which is compatible with CardBus and can be used in a CardBus slot, having a non-volatile memory as the card device (See Column 1 Line 59 – Column 2 Line 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the computer system of Yoda with the fast boot by saving the system state to non-volatile memory of Lay in order to allow the system to boot up faster (See Column 1 Lines 39-50 and Column 2 Lines 23-40 of Lay). It would have been further obvious to place the non-volatile memory on the PCMCIA card of Viswanadham because PCMCIA memory cards are small, lightweight, and do not

require drive motors (See Column 1 Lines 64-67), and thus can be easily transported between multiple computer systems, and because PCMCIA, which stands for Personal Computer System Memory Card International Association, was designed for memory cards.

4. In reference to Claim 4, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 1 above. Viswanadham further teaches that the non-volatile memory of the PC card comprises a flash memory device (See Column 1 Lines 59-61).

5. In reference to Claim 5, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 1 above. Yoda further teaches that the PC card further includes a bus interface coupled to the PCI bus, and further coupled to the PC card device and the controller to transfer data between the device and the PCI bus in accordance with a data format and transfer protocol of the PCI bus (See Figure 1 Number 27). The PCMCIA card inherently includes a controller for transferring data between the flash memory and the attached bus in accordance with the data format and transfer protocol of the attached bus.

6. In reference to Claim 6, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 1 above. Lay further teaches a transfer component directing the controller to coordinate access between the non-volatile memory and the memory to

transfer machine state information (See Figures 4 and 6, Column 2 Lines 26-31, Column 2 Lines 45-54, Column 3 Lines 2-5, and Column 5 Lines 39-63).

7. In reference to Claim 7, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 1 above. Yoda, Lay, and Viswanadham do not teach compression and decompression components for compressing the machine state information to be stored and decompressing the stored compressed machine state information to be downloaded, respectively. Lay, however, teaches that it is well known to compress an image of the machine state information to be saved to disk, and to later decompress the image when booting the system (See Column 1 Lines 51-60).

It would have been obvious to compress the image of the machine state because it is well known that compressed data takes up less space in memory than uncompressed data, thus allowing more efficient use of the memory space.

8. In reference to Claim 8, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 1 above. Lay further teaches that the machine state information comprises data from the memory and CPU for returning the computer system to the same condition of operability as when the machine state information was stored in the non-volatile memory (See Figure 3 and Column 2 Lines 26-37).

9. In reference to Claim 9, Yoda teaches a central processing unit (CPU) (See Figure 1 Number 10); a memory coupled to the CPU to store data accessible by the

CPU (See Figure 1 Number 12); a PCI bus coupled to the CPU and the memory to provide communication therewith (See Figure 1 Number 18); and a PC card (See Figure 1 Number 26), the PC card further having a controller coupled to the PC card device for coordinating with the CPU access to the device (See Figure 1 Number 28); and a PCI-CardBus bridge coupled to the PC card and the PCI bus to provide communication between the PCI bus and the PC card coupled to the PCI-CardBus bridge (See Figure 1 Number 24). Yoda does not teach the PC card having a non-volatile memory for storing machine state information and further having a controller coupled to the non-volatile memory for coordinating with the CPU access to the non-volatile memory and the memory to store and download the machine state information for capturing and restoring, respectively, a corresponding machine state of a computer system. Lay teaches storing machine state information in a non-volatile memory (See Figure 4 and Column 2 Line 23 – Column 3 Line 5) and a controller coupled to the non-volatile memory for coordinating with the CPU access to the non-volatile memory and the memory to store and download the machine state information for capturing and restoring, respectively, a corresponding machine state of a computer system (See Column 2 Lines 26-31, Column 2 Lines 45-54, and Column 3 Lines 2-5). Viswanadham teaches PCMCIA card, which is compatible with CardBus and can be used in a CardBus slot, having a non-volatile memory as the card device (See Column 1 Line 59 – Column 2 Line 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the computer system of Yoda with the fast boot by

saving the system state to non-volatile memory of Lay in order to allow the system to boot up faster (See Column 1 Lines 39-50 and Column 2 Lines 23-40 of Lay). It would have been further obvious to place the non-volatile memory on the PCMCIA card of Viswanadham because PCMCIA memory cards are small, lightweight, and do not require drive motors (See Column 1 Lines 64-67), and thus can be easily transported between multiple computer systems, and because PCMCIA, which stands for Personal Computer System Memory Card International Association, was designed for memory cards.

10. In reference to Claim 11, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 9 above. Viswanadham further teaches that the non-volatile memory of the PC card comprises a flash memory device (See Column 1 Lines 59-61).

11. In reference to Claim 12, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 9 above. Yoda further teaches that the PC card further includes a bus interface coupled to the PCI bus, and further coupled to the PC card device and the controller to transfer data between the device and the PCI bus in accordance with a data format and transfer protocol of the PCI bus (See Figure 1 Number 27). The PCMCIA card inherently includes a controller for transferring data between the flash memory and the attached bus in accordance with the data format and transfer protocol of the attached bus.

12. In reference to Claim 13, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 9 above. Lay further teaches a transfer component directing the controller to coordinate access between the non-volatile memory and the memory to transfer machine state information (See Figures 4 and 6, Column 2 Lines 26-31, Column 2 Lines 45-54, Column 3 Lines 2-5, and Column 5 Lines 39-63).

13. In reference to Claim 14, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 9 above. Yoda, Lay, and Viswanadham do not teach compression and decompression components for compressing the machine state information to be stored and decompressing the stored compressed machine state information to be downloaded, respectively. Lay, however, teaches that it is well known to compress an image of the machine state information to be saved to disk, and to later decompress the image when booting the system (See Column 1 Lines 51-60).

It would have been obvious to compress the image of the machine state because it is well known that compressed data takes up less space in memory than uncompressed data, thus allowing more efficient use of the memory space.

14. In reference to Claim 15, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 9 above. Lay further teaches that the machine state information comprises data from the memory and CPU for returning the computer system to the same condition of operability as when the machine state information was stored in the non-volatile memory (See Figure 3 and Column 2 Lines 26-37).

15. In reference to Claim 16, Yoda teaches an apparatus having a central processing unit (CPU) (See Figure 1 Number 10) coupled to a memory (See Figure 1 Number 12) via a first bus (See Figure 1 Number 14), and further having a PCI bus coupled to the first bus to provide communication with the CPU and the memory (See Figure 1 Number 18); and a PC card coupled to the PCI bus (See Figure 1 Number 26), the PC card further having a controller coupled to the PC card device for coordinating with the CPU access to the device (See Figure 1 Number 28); and a bus interface compatible with a CardBus and coupled to the PCI bus, the bus interface further coupled to the PC card device and the controller to transfer data between the device and the PCI bus in accordance with a data format and transfer protocol of the PCI bus (See Figure 1 Number 27). Yoda does not teach that the apparatus is for capturing and restoring a machine state of a computer system, the PC card having a non-volatile memory for storing machine state information corresponding to the machine state, and further having a controller coupled to the non-volatile memory to control the storing of data therein and the retrieval of data therefrom; and a transfer component for directing the controller to coordinate with the CPU access to the non-volatile memory and the memory to store and download the machine state information for capturing and restoring, respectively, a corresponding machine state of a computer system. Lay teaches storing machine state information in a non-volatile memory (See Figure 4 and Column 2 Line 23 – Column 3 Line 5); a controller coupled to the non-volatile memory to control the storing of data therein and the retrieval of data therefrom (See Column 2

Lines 26-31, Column 2 Lines 45-54, and Column 3 Lines 2-5); and a transfer component directing the controller to coordinate with the CPU access to the non-volatile memory and the memory to store and download the machine state information for capturing and restoring, respectively, a corresponding machine state of a computer system (See Figures 4 and 6, Column 2 Lines 26-31, Column 2 Lines 45-54, Column 3 Lines 2-5, and Column 5 Lines 39-63). Viswanadham teaches PCMCIA card, which is compatible with CardBus and can be used in a CardBus slot, having a non-volatile memory as the card device (See Column 1 Line 59 – Column 2 Line 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the computer system of Yoda with the fast boot by saving the system state to non-volatile memory of Lay in order to allow the system to boot up faster (See Column 1 Lines 39-50 and Column 2 Lines 23-40 of Lay). It would have been further obvious to place the non-volatile memory on the PCMCIA card of Viswanadham because PCMCIA memory cards are small, lightweight, and do not require drive motors (See Column 1 Lines 64-67), and thus can be easily transported between multiple computer systems, and because PCMCIA, which stands for Personal Computer System Memory Card International Association, was designed for memory cards.

16. In reference to Claim 19, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 16 above. Viswanadham further teaches that the non-volatile memory of the PC card comprises a flash memory device (See Column 1 Lines 59-61).

17. In reference to Claim 20, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 16 above. Lay further teaches the transfer component comprises: a storing component for directing the controller to store machine state information from the CPU and memory to the non-volatile memory (See Figure 3, Column 2 Lines 26-31, and Column 2 Lines 45-54); and a download component for directing the controller to transfer data from the nonvolatile memory to the CPU and the memory (See Figure 5, Column 3 Lines 2-5, and Column 5 Lines 32-63).

18. In reference to Claim 21, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 16 above. Yoda, Lay, and Viswanadham do not teach compression and decompression components for compressing the machine state information to be stored and decompressing the stored compressed machine state information to be downloaded, respectively. Lay, however, teaches that it is well known to compress an image of the machine state information to be saved to disk, and to later decompress the image when booting the system (See Column 1 Lines 51-60).

It would have been obvious to compress the image of the machine state because it is well known that compressed data takes up less space in memory than uncompressed data, thus allowing more efficient use of the memory space.

19. In reference to Claim 22, Yoda teaches an apparatus having a central processing unit (CPU) (See Figure 1 Number 10) coupled to a memory (See Figure 1 Number 12),

and further having a PCI bus coupled to the CPU and memory to provide communication with the CPU and the memory (See Figure 1 Number 18); and a PC card coupled to the PCI bus (See Figure 1 Number 26), the PC card further having a controller coupled to the PC card device for coordinating with the CPU access to the device (See Figure 1 Number 28); and a CardBus compatible bus interface coupled to the PCI bus, and further coupled to the PC card device and the controller to transfer data between the device and the PCI bus in accordance with a data format and transfer protocol of the PCI bus (See Figure 1 Number 27). Yoda does not teach that the apparatus is for capturing and restoring a machine state of a computer system, the PC card having a non-volatile memory for storing machine state information corresponding to the machine state, and further having a controller coupled to the non-volatile memory to control the storing of data therein and the retrieval of data therefrom; and a transfer component for directing the controller to coordinate with the CPU access to the non-volatile memory and the memory to store and download the machine state information for capturing and restoring, respectively, a corresponding machine state of a computer system. Lay teaches storing machine state information in a non-volatile memory (See Figure 4 and Column 2 Line 23 – Column 3 Line 5); a controller coupled to the non-volatile memory to control the storing of data therein and the retrieval of data therefrom (See Column 2 Lines 26-31, Column 2 Lines 45-54, and Column 3 Lines 2-5); and a transfer component directing the controller to coordinate with the CPU access to the non-volatile memory and the memory to store and download the machine state information for capturing and restoring, respectively, a corresponding machine state of a

computer system (See Figures 4 and 6, Column 2 Lines 26-31, Column 2 Lines 45-54, Column 3 Lines 2-5, and Column 5 Lines 39-63). Viswanadham teaches PCMCIA card, which is compatible with CardBus and can be used in a CardBus slot, having a non-volatile memory as the card device (See Column 1 Line 59 – Column 2 Line 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the computer system of Yoda with the fast boot by saving the system state to non-volatile memory of Lay in order to allow the system to boot up faster (See Column 1 Lines 39-50 and Column 2 Lines 23-40 of Lay). It would have been further obvious to place the non-volatile memory on the PCMCIA card of Viswanadham because PCMCIA memory cards are small, lightweight, and do not require drive motors (See Column 1 Lines 64-67), and thus can be easily transported between multiple computer systems, and because PCMCIA, which stands for Personal Computer System Memory Card International Association, was designed for memory cards.

20. In reference to Claim 25, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 23 above. Viswanadham further teaches that the non-volatile memory of the PC card comprises a flash memory device (See Column 1 Lines 59-61).

21. In reference to Claim 26, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 23 above. Lay further teaches the transfer component comprises: a storing component for directing the controller to store machine state information from

the CPU and memory to the non-volatile memory (See Figure 3, Column 2 Lines 26-31, and Column 2 Lines 45-54); and a download component for directing the controller to transfer data from the nonvolatile memory to the CPU and the memory (See Figure 5, Column 3 Lines 2-5, and Column 5 Lines 32-63).

22. In reference to Claim 27, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 23 above. Yoda, Lay, and Viswanadham do not teach compression and decompression components for compressing the machine state information to be stored and decompressing the stored compressed machine state information to be downloaded, respectively. Lay, however, teaches that it is well known to compress an image of the machine state information to be saved to disk, and to later decompress the image when booting the system (See Column 1 Lines 51-60).

It would have been obvious to compress the image of the machine state because it is well known that compressed data takes up less space in memory than uncompressed data, thus allowing more efficient use of the memory space.

23. In reference to Claim 33, Yoda teaches a central processing unit (CPU) (See Figure 1 Number 10); a local CPU bus coupled to the CPU (See Figure 1 Number 14); a memory coupled to the local CPU bus to store data accessible by the CPU via the local CPU bus (See Figure 1 Number 12); a PCI bus coupled to the local CPU bus to provide communication with the CPU and the memory via the local CPU bus (See Figure 1 Number 18); a PCI-CardBus bridge coupled to the PCI bus to provide communication

between the PCI bus and the PC Card coupled to the PCI-CardBus bridge (See Figure 1 Number 24); a CardBus compatible PC card coupled to the PCI-CardBus bridge (See Figure 1 Number 26), the PC card further having a controller coupled to the PC card device for coordinating with the CPU access to the device (See Figure 1 Number 28); and wherein the PC card further includes a bus interface coupled to the PCI bus, and further coupled to the PC card device and the controller to transfer data between the device and the PCI bus in accordance with a data format and transfer protocol of the PCI bus (See Figure 1 Number 27). Yoda does not teach the PC card having a non-volatile memory for storing machine state information and further having a controller coupled to the non-volatile memory to control the storing of data therein and the retrieval of data therefrom; and a transfer component for directing the controller to coordinate with the CPU access to the non-volatile memory and the memory to store and download the machine state information for capturing and restoring, respectively, a corresponding machine state of a computer system. Lay teaches storing machine state information in a non-volatile memory (See Figure 4 and Column 2 Line 23 – Column 3 Line 5) and a controller coupled to the non-volatile memory to control the storing of data therein and the retrieval of data therefrom (See Column 2 Lines 26-31, Column 2 Lines 45-54, Column 3 Lines 2-5, and Column 6 Lines 36-43); and a transfer component for directing the controller to coordinate with the CPU access to the non-volatile memory and the memory to store and download the machine state information for capturing and restoring, respectively, a corresponding machine state of a computer system (See Figures 4 and 6, Column 2 Lines 26-31, Column 2 Lines 45-54, Column 3 Lines 2-5,

and Column 5 Lines 39-63). Viswanadham teaches PCMCIA card, which is compatible with CardBus and can be used in a CardBus slot, having a non-volatile memory as the card device (See Column 1 Line 59 – Column 2 Line 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the computer system of Yoda with the fast boot by saving the system state to non-volatile memory of Lay in order to allow the system to boot up faster (See Column 1 Lines 39-50 and Column 2 Lines 23-40 of Lay). It would have been further obvious to place the non-volatile memory on the PCMCIA card of Viswanadham because PCMCIA memory cards are small, lightweight, and do not require drive motors (See Column 1 Lines 64-67), and thus can be easily transported between multiple computer systems, and because PCMCIA, which stands for Personal Computer System Memory Card International Association, was designed for memory cards.

24. In reference to Claim 34, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 33 above. Viswanadham further teaches that the non-volatile memory of the PC card comprises a flash memory device (See Column 1 Lines 59-61).

25. In reference to Claim 36, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 33 above. Yoda, Lay, and Viswanadham do not teach compression and decompression components for compressing the machine state information to be stored and decompressing the stored compressed machine state information to be

downloaded, respectively. Lay, however, teaches that it is well known to compress an image of the machine state information to be saved to disk, and to later decompress the image when booting the system (See Column 1 Lines 51-60).

It would have been obvious to compress the image of the machine state because it is well known that compressed data takes up less space in memory than uncompressed data, thus allowing more efficient use of the memory space.

26. In reference to Claim 37, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 33 above. Lay further teaches that the machine state information comprises data from the memory and CPU for returning the computer system to the same condition of operability as when the machine state information was stored in the non-volatile memory (See Figure 3 and Column 2 Lines 26-37).

27. In reference to Claim 38, Yoda teaches a computer system having a central processing unit (CPU) (See Figure 1 Number 10) coupled to a memory (See Figure 1 Number 12), and further having a bus coupled to the CPU and memory to provide communication therewith (See Figure 1 Number 14), a PC card (See Figure 1 Number 26), and wherein transferring information to the PC card comprises transferring data from the CPU and the memory to the PC card in accordance with a CardBus protocol (See Figure 1 Number 24). Yoda does not teach a method for storing a machine state of the computer system, comprising: capturing the machine state of the computer system via a controller coupled to a non-volatile memory to control the storing of data

therein and the retrieval of data therefrom; transferring machine state information corresponding to the captured machine state from the computer system to a PC card operably coupled with the non-volatile memory; and storing the machine state information in the non-volatile memory in order to restore the stored machine state when the machine state information is provided to a computer system. Lay teaches capturing the machine state of the computer system via a controller coupled to a non-volatile memory to control the storing of data therein and the retrieval of data therefrom (See Column 2 Lines 26-37); transferring machine state information corresponding to the captured machine state from the computer system to a non-volatile memory (See Figure 4 and Column 2 Line 23 – Column 3 Line 5); and storing the machine state information in the non-volatile memory in order to restore the stored machine state when the machine state information is provided to a computer system (See Figure 4 and Column 2 Line 23 – Column 3 Line 5). Viswanadham teaches PCMCIA card, which is compatible with CardBus and can be used in a CardBus slot, having a non-volatile memory as the card device (See Column 1 Line 59 – Column 2 Line 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the computer system of Yoda with the fast boot by saving the system state to non-volatile memory of Lay in order to allow the system to boot up faster (See Column 1 Lines 39-50 and Column 2 Lines 23-40 of Lay). It would have been further obvious to place the non-volatile memory on the PCMCIA card of Viswanadham because PCMCIA memory cards are small, lightweight, and do not require drive motors (See Column 1 Lines 64-67), and thus can be easily transported

between multiple computer systems, and because PCMCIA, which stands for Personal Computer System Memory Card International Association, was designed for memory cards.

28. In reference to Claim 39, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 38 above. Lay further teaches that capturing, transferring and storing the machine state information is in response to executing a power down procedure (See Column 4 Lines 20-25).

29. In reference to Claim 40, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 38 above. Lay further teaches that capturing, transferring and storing the machine state information is in response to a user request (See Column 4 Lines 20-25, Column 4 Lines 41-55, and Column 5 Lines 36-38).

30. In reference to Claim 41, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 38 above. Lay further teaches that the machine state information comprises data from the memory and CPU for returning the computer system to the same condition of operability as when the machine state information was stored in the non-volatile memory (See Figure 3 and Column 2 Lines 26-37).

31. In reference to Claim 42, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 38 above. Lay further teaches that capturing the machine state of the

computer system comprises: capturing data present in the memory (See Column 2 Lines 33-37); and capturing data present in registers of the CPU (See Column 5 Lines 1-6).

32. In reference to Claim 44, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 38 above. Yoda, Lay, and Viswanadham do not teach compressing the machine state information to be stored in the non-volatile memory. Lay, however, teaches that it is well known to compress an image of the machine state information to be saved to disk, and to later decompress the image when booting the system (See Column 1 Lines 51-60).

It would have been obvious to compress the image of the machine state because it is well known that compressed data takes up less space in memory than uncompressed data, thus allowing more efficient use of the memory space.

33. In reference to Claim 45, Yoda teaches a computer system having a central processing unit (CPU) (See Figure 1 Number 10) coupled to a memory (See Figure 1 Number 12), and further having a bus coupled to the CPU and memory to provide communication therewith (See Figure 1 Number 18), and a PC card (See Figure 1 Number 26), and wherein transferring information from the PC card device comprises transferring data from the PC card to the computer system in accordance with a CardBus protocol (See Figure 1 Number 24). Yoda does not teach a method for restoring a machine state of the computer system, comprising: identifying machine state

information corresponding to the machine state to which the computer system is to be restored stored in a non-volatile memory included in a PC card; transferring the machine state information from the non-volatile memory to the computer system via a controller coupled to the non-volatile memory to control the storing of data therein and the retrieval of data therefrom; and writing data of the machine state information to the memory and CPU in order to restore the computer system to the identified machine state. Lay teaches identifying machine state information corresponding to the machine state to which the computer system is to be restored stored in a non-volatile memory (See Column 5 Lines 41-44); transferring the machine state information from the non-volatile memory to the computer system via a controller coupled to the non-volatile memory to control the storing of data therein and the retrieval of data therefrom (See Figure 6 and Column 5 Lines 44-46); and writing data of the machine state information to the memory and CPU in order to restore the computer system to the identified machine state (See Figures 5 and 6 and Column 5 Lines 53-63). Viswanadham teaches PCMCIA card, which is compatible with CardBus and can be used in a CardBus slot, having a non-volatile memory as the card device (See Column 1 Line 59 – Column 2 Line 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the computer system of Yoda with the fast boot by saving the system state to non-volatile memory of Lay in order to allow the system to boot up faster (See Column 1 Lines 39-50 and Column 2 Lines 23-40 of Lay). It would have been further obvious to place the non-volatile memory on the PCMCIA card of

Viswanadham because PCMCIA memory cards are small, lightweight, and do not require drive motors (See Column 1 Lines 64-67), and thus can be easily transported between multiple computer systems, and because PCMCIA, which stands for Personal Computer System Memory Card International Association, was designed for memory cards.

34. In reference to Claim 46, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 45 above. Lay further teaches that identifying, transferring and writing the machine state information is in response to executing a power up procedure (See Column 4 Lines 20-25 and Column 5 Lines 32-34).

35. In reference to Claim 47, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 45 above. Lay further teaches that identifying, transferring and writing the machine state information is in response to a user request (See Column 4 Lines 20-25, Column 4 Lines 41-55, and Column 5 Lines 36-38).

36. In reference to Claim 48, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 45 above. Lay further teaches that the machine state information comprises data from the memory and CPU for returning the computer system to the same condition of operability as when the machine state information was stored in the non-volatile memory (See Figure 3 and Column 2 Lines 26-37).

37. In reference to Claim 50, Yoda, Lay, and Viswanadham teach the limitations as applied to Claim 45 above. Yoda, Lay, and Viswanadham do not teach that the machine state information stored in the non-volatile memory is in a compressed data format, and the method further comprises decompressing the machine state information to be transferred to the computer system. Lay, however, teaches that it is well known to compress an image of the machine state information to be saved to disk, and to later decompress the image when booting the system (See Column 1 Lines 51-60).

It would have been obvious to compress the image of the machine state because it is well known that compressed data takes up less space in memory than uncompressed data, thus allowing more efficient use of the memory space.

Response to Arguments

38. Applicant's arguments filed 20 April 2006 have been fully considered but they are not persuasive.

39. In response to Applicant's argument that there is no suggestion to combine the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re*

Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the computer system of Yoda with the fast boot by saving the system state to non-volatile memory of Lay in order to allow the system to boot up faster (See Column 1 Lines 39-50 and Column 2 Lines 23-40 of Lay). It would have been further obvious to place the non-volatile memory on the PCMCIA card of Viswanadham because PCMCIA memory cards are small, lightweight, and do not require drive motors (See Column 1 Lines 64-67), and thus can be easily transported between multiple computer systems, and because PCMCIA, which stands for Personal Computer System Memory Card International Association, was designed for memory cards.

40. Applicant has argued that Viswanadham provides no reason or motivation to place the machine state on the PC card. In response, the Examiner notes that Lay discloses that the machine state can be stored on any non-volatile storage device (See Column 2 Lines 44-45). Lay does not explicitly disclose where the non-volatile storage is located. Viswanadham discloses benefits of placing a non-volatile memory on a PCMCIA card (See Column 1 Lines 59-67), which is compatible with the CardBus of Yoda. Thus, it would have been obvious to one of ordinary skill in the art to locate the non-volatile memory of Lay on a PCMCIA card because PCMCIA memory cards are small, lightweight, and do not require drive motors (See Column 1 Lines 64-67), and thus can be easily transported between multiple computer systems.

41. Applicant has argued that the portion of Viswanadham cited as motivation for the combination "merely emphasizes some commonly known characteristics of PC cards." In response, the Examiner notes that because Lay does not explicitly disclose where the non-volatile storage is located, one of ordinary skill would naturally look to various non-volatile storage means, such as the PC card of Viswanadham, which is beneficial because of its small size, low power consumption (due to the lack of drive motors), and low cost (due to its small size and reduced complexity). Thus, the reasons cited do provide motivation for using the PC card non-volatile memory of Viswanadham as the non-volatile storage of Lay.

42. Applicant has argued that the combination of Yoda, Lay, and Viswanadham would teach storing the fast boot sequence of Lay on the hard drive of Yoda. In response, the Examiner notes that Lay does not require that the boot sequence be stored on a hard drive. Lay discloses storing the boot sequence on any non-volatile storage (See Column 2 Lines 44-45), which includes the PC card non-volatile memory of Viswanadham. Thus, the combination, as shown above, discloses all of the limitations as claimed.

43. Applicant has argued that the cited references do not provide the recited functionality of the transfer component, as in Claim 33. In response, the Examiner notes that, as shown in the above rejection, Lay discloses a transfer component for directing the controller to coordinate with the CPU access to the non-volatile memory

and the memory to store and download the machine state information for capturing and restoring, respectively, a corresponding machine state of a computer system (See Figures 4 and 6, Column 2 Lines 26-31, Column 2 Lines 45-54, Column 3 Lines 2-5, and Column 5 Lines 39-63).

44. Applicant has argued that the cited references do not provide for transferring the machine state information to the PC card, as in Claim 38. In response, the Examiner notes that Lay discloses transferring machine state information corresponding to the captured machine state from the computer system to a non-volatile memory (See Figure 4 and Column 2 Line 23 – Column 3 Line 5); and storing the machine state information in the non-volatile memory in order to restore the stored machine state when the machine state information is provided to a computer system (See Figure 4 and Column 2 Line 23 – Column 3 Line 5); and Viswanadham teaches the benefits of placing a non-volatile memory on a PC card (See Column 1 Line 59 – Column 2 Line 4). Thus, Yoda, Lay, and Viswanadham, in combination, teach transferring machine state information to the PC card.

45. Applicant has argued that the cited references do not provide for transferring the machine state information from the non-volatile memory of the PC card to the computer system, as in Claim 45. In response, the Examiner notes that Lay discloses transferring the machine state information from the non-volatile memory to the computer system via a controller coupled to the non-volatile memory to control the storing of data therein and

the retrieval of data therefrom (See Figure 6 and Column 5 Lines 44-46); and writing data of the machine state information to the memory and CPU in order to restore the computer system to the identified machine state (See Figures 5 and 6 and Column 5 Lines 53-63); and Viswanadham teaches the benefits of placing a non-volatile memory on a PC card (See Column 1 Line 59 – Column 2 Line 4). Thus, Yoda, Lay, and Viswanadham, in combination, teach transferring the machine state information from the non-volatile memory of the PC card to the computer system.

46. Applicant has argued that the status identifier of Claim 5 was correct. In response, the Examiner notes that Claim 5 was amended to change "second bus" to "PCI bus" in the response filed 7 November 2005, which was the response addressed in the Office Action of 23 December 2005. Although the claim had been amended, the status identifier read "previously amended" instead of "currently amended".

Conclusion

47. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Thomas J. Cleary whose telephone number is 571-272-3624. The Examiner can normally be reached on Monday-Thursday (7-3), Alt. Fridays (7-2).

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Mark Rinehart can be reached on 571-272-3632. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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